

## CLAIMS

1. A robot joint structure having a first main link and a second main link connected through a first movable link and a second movable link, and an actuator installed on the first main link and driving the first movable link such that the first main link and the second main link are displaced relative to each other;

5 characterized in that:

rotation axes A and B each provided at the first main link; and

rotation axes C and D each provided at the second main link;

wherein in a quadrangle whose apices are formed by the rotation axes A, B,

10 C and D, when assuming that rotation axes that are diagonally opposed to each other are A and C, while those that are diagonally opposed to each other are B and D, the rotation axes A and C are connected through the first movable link and the rotation axes B and D are connected through the second movable link in such a manner that the first movable link and the second movable link are disposed to cross and that the rotation axis A is driven by the actuator to drive the first movable link, such that the first main link and the second main link are displaced relative to each other.

15 2. The robot joint structure according to claim 1, wherein the rotation axis A and the rotation axis B are provided on or near a same straight line lying perpendicular to a longitudinal direction of the first main link.

20 25 3. The robot joint structure according to claim 1 or 2, wherein the rotation axis C and the rotation axis D are provided on or near a same straight line lying perpendicular to a longitudinal direction of the second main link.

4. The robot joint structure according to any of claims 1 to 3, wherein at least one of the first movable link and the second movable link is given a curved shape, so as not to interfere with the rotation axes of the other of the first movable link and the second movable link.

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5. The robot joint structure according to any of claims 1 to 4, wherein at least one of the first movable link and the second movable link is provided with an over-rotation prevention mechanism that prevents the joint from over-rotating beyond predetermined angles.

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6. The robot joint structure according to any of claims 1 to 5, wherein the joint is provided with covers covering the first main link, the first movable link, the second movable link, the second main link and the actuator from outside, the covers comprising:

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a first cover covering the first main link and the actuator;

a second cover covering the second main link; and

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a third cover slidably interposed between the first cover and the second cover, and covering the first and second movable links and a gap formed between the first and second covers occurring with rotation of the joint.